AMENDMENTS TO THE CLAIMS

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Previously presented) The gas purification system of claim 2 wherein said heater has flowing therein a sweep gas.

15. (Currently amended) The gas purification system of claim [[1]] 29 further comprising feed liquid compression means to convey the mixed gas flow through the portal into said reactor.

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Currently amended) A gas purification system comprising:

a reactor operating above room temperature having a reactor volume and a reactor wall, the reactor wall having an interior side and an exterior side, and defining a communicating portal therebetween for a mixed gas flow;

a gas selective membrane within the reactor volume, said gas membrane in contact with the mixed gas flow and selectively passing a constituent gas of the mixed gas flow therethrough, such that a raffinate of the mixed gas flow is retained in contact with said membrane;

an outlet channel for removing said raffinate from contact with said selective membrane;

a raffinate compressor disposed in fluid communication with said outlet channel expanding said raffinate and simultaneously compressing a liquid feed to said reactor; and

a passageway for the removal of the constituent gas from the interior of said reactor.

21. (Original) The gas purification system of claim 20 wherein the raffinate compressor is a venturi.

22. (Original) The gas purification system of claim 20 further comprising a fuel cell powered by the constituent gas.

23. (Original) The gas purification system of claim 20 wherein the passageway is brazed to the feed conduit.

24. (Canceled)

25. (Currently amended) The gas purification system of claim 20 having at least one component coupled thereto, said component being selected from a group consisting of: ~~a raffinate burner,~~ a mixed gas flow feed pump, a raffinate back pressure controller, and an oxygen sensor.

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Currently amended) A gas purification system comprising:

a feed pump;

a reactor-purifier system for ~~generated~~ generating purified hydrogen by transmission through a hydrogen selective membrane and a raffinate stream from a feed, the feed provided by said feed pump;

a burner for combusting the raffinate produced by said reactor-purifier system to yield a heated exhaust gas, heat from said burner being used to heat said reactor-purifier system;

a back pressure regulator intermediate between said reactor and said burner and regulating flow of said raffinate therebetween;

a needle valve in parallel with said back pressure regulator; and

a source of air mixed with said raffinate before combustion in said burner.

30. (Currently amended) ~~The system of claim 29 further comprising~~ A gas purification system comprising:

a feed pump;

a reactor-purifier system for ~~generated~~ generating purified hydrogen by transmission through a hydrogen selective membrane and a raffinate stream from a feed, the feed provided by said feed pump;

a burner for combusting the raffinate produced by said reactor-purifier system to yield a heated exhaust gas, heat from said burner being used to heat said reactor-purifier system;

a back pressure regulator intermediate between said reactor and said burner and regulating flow of said raffinate therebetween;

a source of air mixed with said raffinate before combustion in said burner; and

a mix controller adjusting the ratio of said raffinate in said air provided to said burner.

31. (Previously presented) The system of claim 30 further comprising an oxygen sensor to adjust the amount of said raffinate relative to the amount of said source of air delivered to said burner.

32. (Previously presented) The system of claim 29 further comprising a fuel cell receiving the hydrogen from said reactor.

33. (Currently amended) The system of claim 29 wherein said reactor-purifier system is the membrane reactor gas purification system ~~of claim 1~~ comprising:

a reactor having a reactor volume and a reactor wall, the reactor wall having an interior side and an exterior side, and defining a communicating portal therebetween for a mixed gas flow;

a heat conduit within the reactor volume having a conduit wall, the conduit wall having an interior side and an exterior side, and defining a channel therethrough for passing a heated material through the reactor volume;

a reaction catalyst coating in contact with the exterior side of the conduit wall;

a gas selective membrane within the reactor volume disposed between the reactor wall and the conduit wall, said gas membrane in contact with the mixed gas flow and selectively passing a constituent gas of the mixed gas flow therethrough, such that a raffinate of the mixed gas flow is retained in contact with said membrane;

an outlet channel for removing said raffinate from contact with said selective membrane; and

a passageway for the removal of the constituent gas from the interior of said reactor.

34. (Previously presented) A feed pump controller operating on the system of claim 29, such that feed rate is adjusted in response to hydrogen output pressure.

35. (Previously presented) The system of claim 29 further comprising a means for combining additional fuel with the rafinate flow to the burner; additional fuel being used for startup and, to a lesser extent, for ordinary operation.

36. (Previously presented) The system of claim 35 further comprising a fuel flow controller which adjusts the rate of additional fuel flow in response to the temperature of said reactor-purifier system.

37. (Previously presented) The system of claim 29 wherein said reactor-purifier system comprises a separate reactor and a purifier system.

38. (Canceled)

39. (New) The system of claim 20 further comprising a raffinate burner coupled to said outlet.

40. (New) The system of claim 30 further comprising a fuel cell receiving the hydrogen from said reactor.

41. (New) A feed pump controller operating on the system of claim 30, such that feed rate is adjusted in response to hydrogen output pressure.

42. (New) The system of claim 30 further comprising a means for combining additional fuel with the raffinate flow to the burner; additional fuel being used for startup and, to a lesser extent, for ordinary operation.